SP G-2 Task 6

Channel Meander and Bank Erosion

Table 6.1-1. Bank Composition.			
	BANK COMPOSITION	Linear feet (Both Banks)	Percentage
	Bedrock	5425	0.8%
	Laguna	33274	4.9%
	Modesto	22409	3.3%
	Slickens	159938	23.5%
	Tailings	65872	9.7%
	Flood Plain	96915	14.2%
	Alluvial	261098	38.4%
	Levee	35861	5.3%

Table 6.1-3			RIP-RAP		
	Outfall to Honcutt				
		Rip=Rapped Bank			
		feet	miles	river miles	percent of bank
right bank		14280	2.704545	14.7	18.40%
left bank		6480	1.227273	14.7	8.35%
	Honcutt to Sunset Pumps				
right bank		3500	0.662879	5.2	12.75%
left bank		6860	1.299242	5.2	24.99%
	Sunset Pumps to Yuba city				
right bank		7250	1.373106	11	12.48%
left bank		250	0.047348	11	0.43%
	Yuba City to Verona				
right bank		7435	1.408144	28	5.03%
left bank		18310	3.467803	28	12.39%
right bank					
left bank					
sum		64365	12.19034	117.8	10.35%

Table 6.1-5. Erosion Site Summary Oroville to Yuba City						
					Max. width of erosion (ft)	**Rate of Max. erosion (ft/year)**
	Erosion Site Analysis at Site 28.6				pre-dam	
					705.3	12.1
					post-dam	
					363.5	11.4
	Erosion Site Analysis at Site 33.5				pre-dam	
					224.7	3.9
					post-dam	
					97.0	3.1
	Erosion Site Analysis at Site 34.0				pre-dam	
					482.2	8.3
					post-dam	
					743.1	23.4
	Erosion Site Analysis at Site 34.5				pre-dam	
					1,019.9	17.5
					post-dam	
					682.1	21.5
	Erosion Site Analysis at Site 35.0				pre-dam	
					1,087.6	18.7
					post-dam	
					277.6	8.7
	Erosion Site Analysis at Site 44.0				pre-dam	
					532.8	9.1
					post-dam	
					532.5	16.8
	Erosion Site Analysis at Site 44.4				pre-dam	
					319.8	5.5
					post-dam	
					343.9	10.8
	Erosion Site Analysis at Site 45.0				pre-dam	
					455.3	7.8
					post-dam	
					420.2	13.2
	Erosion Site Analysis at Site 46.4				pre-dam	
					636.9	10.9
					post-dam	
					618.7	19.5
	Erosion Site Analysis at Site 52.3				pre-dam	
					566.8	9.7
					post-dam	
					513.6	16.2

FERC SP-G2 TASK 5B

EROSION SITE ANALYSIS

For selected sites along the upper reach of the Feather River (Oroville Dam to Yuba City / Marysville)

Erosion Site Analysis at Site 44.0

General Site Description

Located along left-bank on a right-handed bend

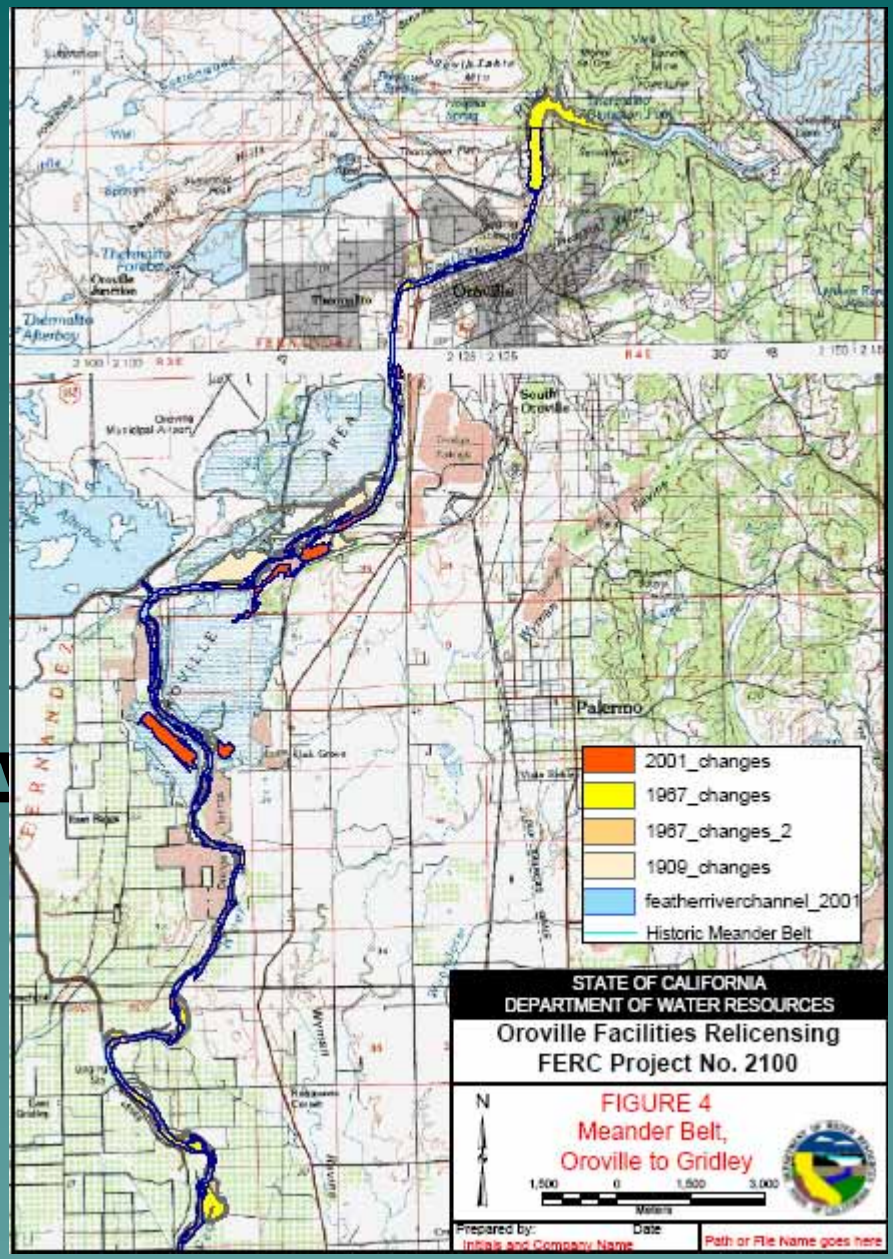
Upstream Extent (river mile)	44.35
Downstream Extent (river mile)	43.64
Length of Erosion Site (river miles)	0.71

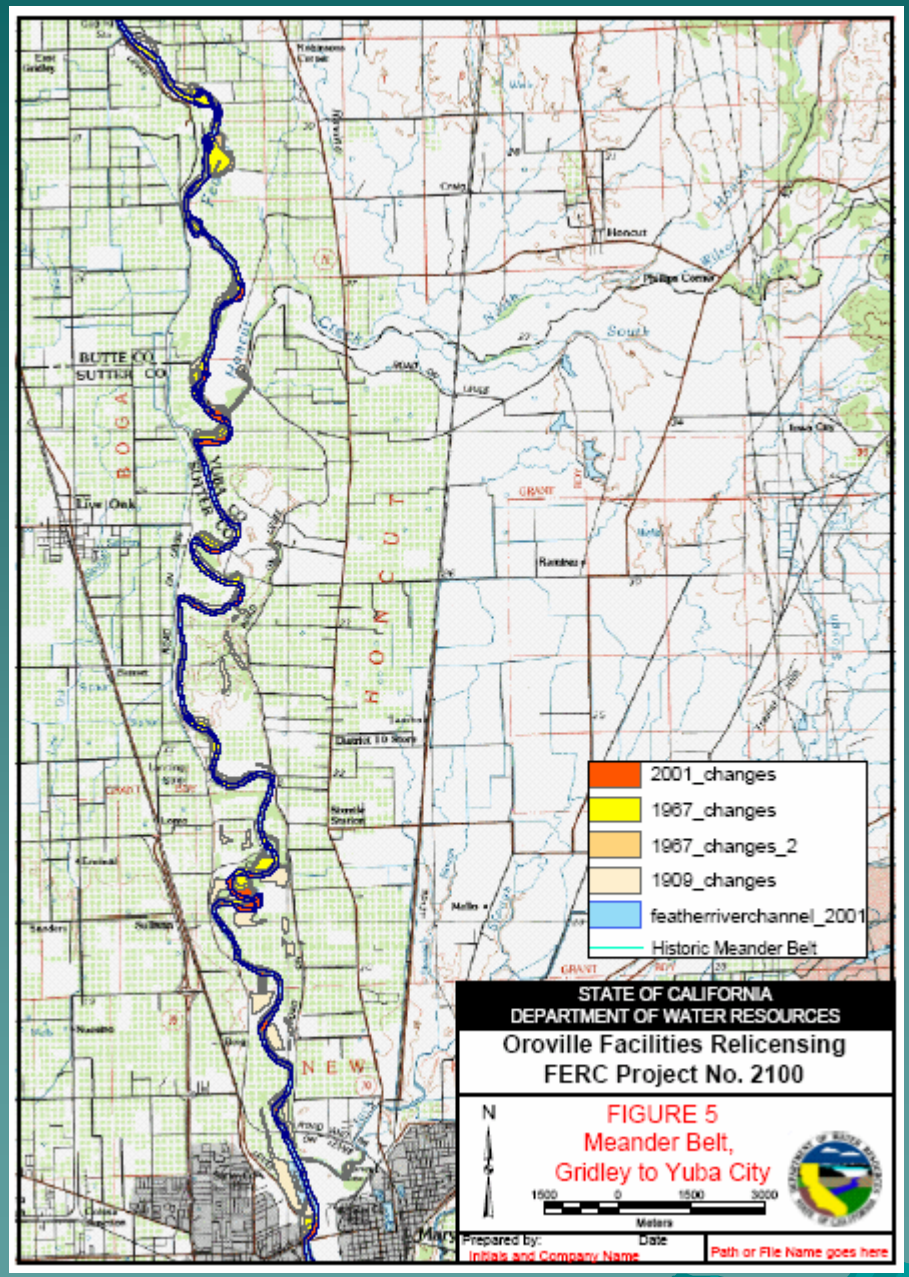
Measurements and Calculations

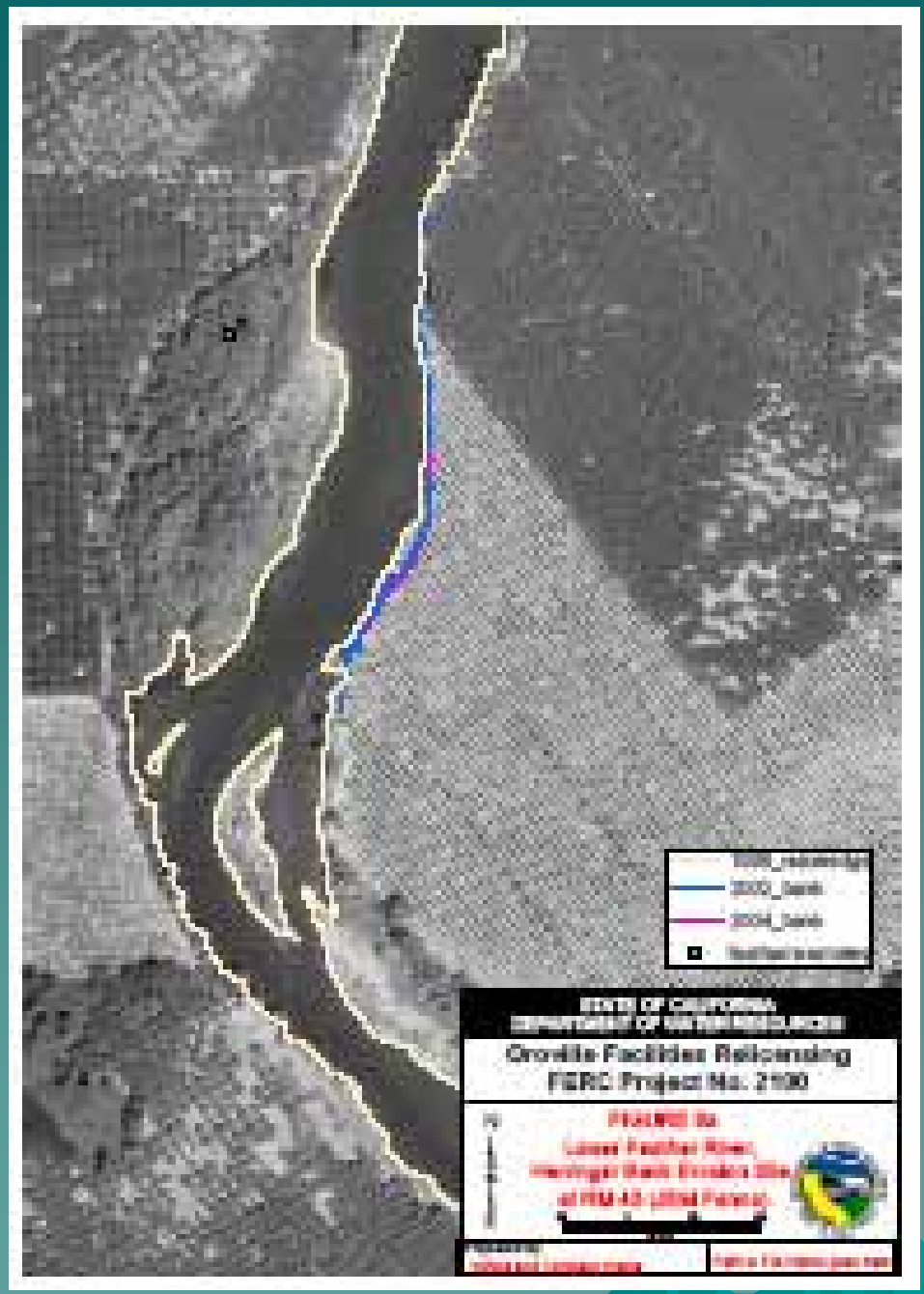
Date	# of months spanned	Cut Bank Length (m)	Cut Bank Length (ft)	Avg. Cut Bank Length (ft)	Area between cut banks (m^2)	Area between cut banks (ft^2)	Area between cut banks (acres)	Eroded area per avg. cut bank length (acres/ft)	Erosion rate for avg. cut bank (acres/ft/month)	Erosion rate for avg. cut bank (acres/ft/year)	Max. width of erosion (m)	Max. width of erosion (ft)	Rate of Max. erosion (ft/year)	Direction of max. erosion (North Azimuth)
Sep-09		1,095.54	3,594.2											
	560			3,681.5	96,849.5	1,042,100.1	78.52	0.021	0.00004	0.00046		pre-dam		pre-dam
May-56		1,148.74	3,768.8											
	139			3,846.9	15,774.7	169,735.8	12.79	0.003	0.00002	0.00029	162.4	532.8	9.1	126
Dec-67		1,196.33	3,924.9											
	229			4,093.5	80,296.8	863,993.5	65.10	0.016	0.00007	0.00083		post-dam		post-dam
Jan-86		1,299.10	4,262.1											
	152			4,146.9	19,233.3	206,949.8	15.59	0.004	0.00002	0.00030	162.3	532.5	16.8	338
Sep-98		1,228.87	4,031.7											

Estimated "cut" and "fill" (m^2)

1909 to 1956		1956 to 1967		1967 to 1986		1986 to 1998	
cut	fill	cut	fill	cut	fill	cut	fill
96,849.5	867.31	15,744.11	2,421.4	72.5	259.21	187.7	121.35
		30.60	1,572.44	80,145.31	21.73	19045.54	
			312.64	79.00	81.49		
					61.12		


Oroville
Thermalito
South Oroville
Palermo
2001_changes
1987_changes
1987_changes_2
1909_changes
featherriverchannel_2001
Historic Meander Belt
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
FIGURE 4
Meander Belt,
Oroville to Gridley
N
1,500 0 1,500 3,000
Meters
Prepared by:
Initials and Company Name
Date
Path or File Name goes here


2001_changes
1967_changes
1967_changes_2
1909_changes
featherriverchannel_2001
Historic Meander Belt
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
Oroville Facilities Relicensing
FERC Project No. 2100
N
FIGURE 5
Meander Belt,
Gridley to Yuba City
1500 0 1500 3000
Meters
Prepared by:
Initials and Company Name
Date
Path or File Name goes here


Oroville Facilities Relicensing
FERC Project No. 2100